

Subject: Proposal to Remove the RHIC Chipmunk's Interlocking Function

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The committee reviewed the proposal¹ for the removal of the chipmunk interlocks at RHIC. **The committee recommends that the removal of the chipmunks from interlocking the RHIC beam be conducted as soon as practical.**

The Chipmunks have their alarm latched so that it requires the attention of the operators. The response procedure should be modified to account for the latching and the appropriate response of the operators if there is a large beam loss. **(CK-FY2009-RHIC-574)**

Monitor TLDs be placed at gates with chipmunks, many or all already have monitor TLDs. **(CK-FY2009-RHIC-575)**

That an outdoor chipmunk be placed in the area outside of 1002 replacing NMON267 which was located in the BRAHMS fast electronic hut. **(CK-FY2009-RHIC-576)**

The issue of posting Controlled Areas with dose greater than 100 mrem/year be reviewed with RCD for occupancy factors, RCD requires greater than 50 micro-rem per hour to be posted as TLD required. This is primarily related to 8GE2 where there is presently a chronic dose. **(CK-FY2009-RHIC-577)** This issue is already under discussion.

The actions allowed if a chipmunk fails should be followed up by a subcommittee. **(CK-FY2009-RHIC-578)**

A sub-committee will review shielding modification for 8GE2 to reduce the chronic dose from the blue primary collimator. **(CK-FY2009-RHIC-579)**

The area outside the gate into 1005s to the double door be posted as a Controlled Area for operations. **(CK-FY2009-RHIC-580)**

Chipmunk NMON232 should be considered with the Thompson Road chipmunks since it examines beam faults in the Y arc. (CK-FY2009-RHIC-581)

Discussion

The chipmunk interlocking function is not required by laboratory regulations for the dose in a hour discussed for the maximal beam fault. Typically the committee requires additional controls for levels above 100 mrem in an hour. The chipmunk alarm level with a latch and appropriate response will provide for active means to monitor potential dose in large beam faults. If necessary the TLDs can be pulled and their dose obtained. It is considered very unlikely that anyone will receive a dose of more than 100 mrem in a year. The chipmunk interlocks are not effective for most beam faults which are expected to be on a short time scale. It was noted by operations that the experience is that other items such as loss monitors pull the beam permit before the chipmunk can pull it since the chipmunks have a much slower response time.

The dose in an hour from reference 2 was used in the discussion. Six chipmunks have the dose from a maximal beam fault less than 100 mrem. The other chipmunks have doses from 100 to 475 mrem. It was noted that the calculations were done at the gate boundary for labyrinths and not at the chipmunk locations since this is where the access controls change. The chipmunk at Railroad Ave. is not in the list since it does not interlock. The chipmunk in the ring for the RF cavities will retain its interlock function and was not part of the list.

The chronic dose from gate 8GE2 should be reduced. It is likely that the present calculation³ is conservative by a factor of 3 or 4. In addition we have not operated with the amount of beam on the collimator as used in the beam loss scenario. A tech workshop is near the gate so reducing the neutron glow is important.

References

1. D. Beavis memorandum, "[Proposal to Remove RHIC Chipmunk's Interlocking Function](#)", Dec. 23, 2008.
2. D. Beavis memorandum, "[Maximum Dose in an Hour at RHIC Chipmunks](#)", Dec. 30, 2008.
3. D. Beavis memorandum, "[Labyrinth 8GE2 at RHIC](#)", Dec. 29, 2008.

CC: RSC
Present
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RSC Minutes file
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